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FINAL REPORT

EVALUATION OF THE POINT LEPREAU GS FUEL HANDLING OPERATOR TRAINING PROGRAM

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FINAL EVALUATION REPORT

EVALUATION OF THE POINT LEPREAU GS FUEL HANDLING OPERATOR TRAINING PROGRAM

AECB File 34.2.279.11
Evaluation No. 99003

by

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March, 1999

FINAL EVALUATION REPORT

POINT LEPREAU GS FUEL HANDLING OPERATOR TRAINING

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FINAL EVALUATION REPORT

POINT LEPREAU GS FUEL HANDLING OPERATOR TRAINING

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ABSTRACT

This project was carried out in accordance with AECB Contract 98-189 Appendix A entitled "Training Programs for Fuel Handling Operators at Point Lepreau Generating Station". The project evaluated the fuel handling operator training program relative to the AECB SAT-based "Objectives and Criteria for Regulatory Evaluation of Training Programs". The evaluation team consisted of John Condon of QUALPROTECH (OAKVILLE) INC., and Michèle Légaré of AECB-Personnel Qualification and Assessment Division.

The evaluation involved a review of Point Lepreau station and training department documents, observation of fuel handling operator performance at the control panel and in the maintenance shop, observation of classroom training, and interviews with station, fuel handling and training department management and operating personnel.

The evaluation process provided findings under each of the AECB SAT-based criteria determined through the interviews, observations and document review which are detailed in the body of the report. Where the program did not comply with a training criterion, a numbered deficiency was noted.

The design and development work completed so far has considerably improved the fuel handling operator training program and, except for a few deficiencies noted in the report, the program appears to meet the needs. Corrective measures are planned for the deficiencies in the near future.

In total, the program was perceived as effective and successful.

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EXECUTIVE SUMMARY

As the licensing agency for nuclear facilities in Canada, the AECB (Atomic Energy Control Board) monitors and evaluates training provided to staff in support of the safe, reliable operation of nuclear stations. This project evaluates the effectiveness of the fuel handling operator training program at the Point Lepreau Generating Station. The training program is in the midst of a transition to a SAT-based program which has been in effect for about 1½ years.

The specific objectives of this project are:

1. To determine if the training program for fuel handling operators has been designed, developed, implemented and revised in a process consistent with a Systematic Approach to training (SAT). This requires the training program to be based on appropriate analyses of the jobs to determine the needed skills, knowledge and abilities. The training program must have an effective mechanism for improvement based on the critiques by trainees, trainers, managers and lessons learned from operating experience. The program's conformity with the principles of SAT was determined by evaluation against the AECB "Objectives and Criteria for Regulatory Evaluation of Training Program" dated 1 January, 1997.

2. To determine if the training program for fuel handling operators is effective in conveying the needed knowledge and skills, including:

   -technical skills
   -teamwork and communication skills
   -skill and practices consistent with a good operational "safety culture".

The process for evaluating the fuel handling operator training program consisted of (a) a review of the fuel handling training documentation and procedures, (b) observing fuel handling operator training and use of skills and knowledge, and (c) interviewing personnel with strong interest in the fuel handling operator training program. These were combined and evaluated in comparison to the AECB SAT-based objectives and criteria, and the specific project objectives given above.

The evaluation process determined that the fuel handling program is in accordance with the AECB SAT-based objectives and criteria except for the following deficiencies:

1. Maintenance OJT trainer training is not formally defined and maintenance OJT trainers have not received training for delivery and assessing of OJT. (Criterion 2.4)
2. Maintenance OJT training objectives are not yet written. (Criterion 3.4)

3. Maintenance OJT does not include approved training material pending formalization of the OJT process. (Criterion 4.1)
4. Preparation of training course packages remains to be completed. (Criterion 4.2)
5. Formal JPMs have not been developed for maintenance OJT. (Criterion 6.7)
6. The Training Department does not conduct comprehensive evaluations of the fuel handling training program. (Criterion 7.1)

Deficiencies No.'s 1, 2, 3 and 5 are due to the OJT for fuel handling maintenance not yet being integrated into the SAT-based program. Deficiency No. 4 is because most of Level II and a few of the Level I training course packages are not yet prepared, while Deficiency No. 6 is due to the absence of the required station Training Department monitoring and evaluation of the fuel handling training program which has yet to be initiated. The evaluation team was advised that the incorporation of maintenance OJT and implementation of program monitoring and evaluation by the Training Department are planned by the respective training organizations in the near future. Completion of preparation of all course packages is scheduled for mid-2001.

The design and development work completed so far has considerably improved the fuel handling operator training program and, except for the few deficiencies noted, the program appears to meet the needs.

Overall, the program is perceived as being effective and successful.

FINAL EVALUATION REPORT

POINT LEPREAU GS FUEL HANDLING OPERATOR TRAINING PROGRAM

1. INTRODUCTION

Fuel handling is probably the most complex mechanical system in the CANDU system. The tasks and operations must be closely controlled to ensure that the operational objectives are safely and efficiently achieved. The system must also be operated safely in abnormal and emergency situations when the normal operating sequences and procedures may not be adequate or appropriate. A skilled, knowledgeable operating staff is vital to the successful operation of the fuel handling system. Accordingly, integration of an excellent training program for fuel handling operators must be a major component in the overall fuel handling operating strategy.

As the licensing agency for nuclear facilities in Canada, the AECB (Atomic Energy Control Board) monitors and evaluates training provided to staff in support of the safe, reliable operation of a nuclear station. This project evaluates the effectiveness of the fuel handling operator training program at the Point Lepreau Generating Station.

The specific objectives of this project are:

1. To determine if the training program for fuel handling operators has been designed, developed, implemented and revised in a process consistent with a Systematic Approach to training (SAT). This requires the training program to be based on appropriate analyses of the jobs to determine the needed skills, knowledge and abilities. The training program must have an effective mechanism for improvement based on the critiques by trainees, trainers, managers and lessons learned from operating experience. The program's conformity with the principles of SAT was determined by evaluation against the AECB "Objectives and Criteria for Regulatory Evaluation of Training Program" dated 1 January, 1997.

2. To determine if the training program for fuel handling operators is effective in conveying the needed knowledge and skills, including:

   -technical skills
   -teamwork and communication skills
   -skill and practices consistent with a good operational "safety culture".

2. POINT LEPREAU GS FUEL HANDLING OPERATOR TRAINING ORGANIZATION

The Fuel Handling organization at the Point Lepreau GS consists of the Fuel Handling Supervisor reporting go the Acting Production Manager who in turn reports to the Station Manager. Reporting to the Fuel Handling Supervisor are:

(a) Fuel Handling Foreman to whom the fuel handling operators report (also responsible for OJT).
(b) Fuel Handling Technical Supervisor with fuel handling system engineers.
(c) Fuel Channels Technical Supervisor with fuel channel engineers.
(d) Senior Fuel Handling Training Specialist to whom the trainers (currently one) report. (Note that the Senior Fuel Handling Training Specialist also plays a major role as trainer and training developer).

The fuel handling operators when trained are fully qualified to perform all the tasks required for operating the fuel handling system (and associated fuel channel work) including control panel operation and maintenance. This multi-skilled approach is cited as a major element in the successful performance of the fuel handling system since all operators have a detailed hands-on knowledge of the fuel handling equipment and components, and its operational aspects and controls. Additionally, the fuel handling trainers are qualified and perform scheduled assignments as highest level operators so that they maintain expert knowledge and skills in the training subjects. The current trainers are among the most experienced operators in the station.

The Fuel Handling Operator Training Program is in the midst of transition to a SAT-based system and while most of the new procedural documentation is in place, a small number of Level I and most of the Level II course packages have yet to be prepared.

3. THE FUEL HANDLING OPERATOR TRAINING PROGRAM EVALUATION PROCESS

The process for evaluating the fuel handling operator training program involved performing the following steps:

(1) Fuel Handling Operator Training Documentation and Procedure Review

The formal training program documents and procedures were reviewed to assess their compliance with the AECB SAT-based Objectives and Criteria. Related station and utility operating and training policies and procedures were also reviewed to confirm fuel handling operator training and quality expectations. Key areas for consideration were training needs assessment, operator qualification and progression, trainer training, program evaluation and improvement, and management support.

The governing documents for fuel handling training at the Point Lepreau GS are as follows:

RD-01364-TR9 Performance Based Training.
This is the top overall training document for the station defining the key objectives and criteria to be achieved by the training programs together with the associated documentation, operational and training management responsibilities, and definitions pertaining to training.

RD 01364-P16 Control of Fuel Handling Operations and Maintenance Activities.
This identifies the documentation used for fuel handling operating and maintenance activities, and the approval requirements for this documentation. Section 5.2 specifies the requirement for confirmation that the performer is fully qualified and understands the required procedures before performing fuel handling operations and describes the training and certification requirements for the various personnel levels involved in fuel handling operations. It stipulates that work may only be performed by those formally trained and certified under the fuel handling training program.

TP 30-17 Fuel Handling Department Training Needs Procedure.
This document outlines the training programs required to maintain and support the fuel handling department. In addition to referencing the preceding procedures, RD-01364-TR9 and RD-01364-P16, it also references a series of training procedures covering a range of training-related topics ranging from terminology through forms and formats, contract training, training management, filing, training design and development, training delivery, evaluation and verification, and training needs assessment. This procedure is the controlling document for fuel handling training, including operator training, and details the training required for each individual prior to their assignment to specific fuel handling work. As such, it lays down the training programs and specific courses which must be successfully completed to qualify for the various fuel handling operator positions and tasks. It defines the responsibilities of the trainees, trainers, fuel handling management and training management in producing, delivering and maintaining / upgrading fuel handling training. It is based on analysis of the fuel handling jobs by a team of fuel handling experts carried out during the transition to a complete SAT-based training to confirm and update job performance requirements and the design and development of the training program.

(2) Observation of Fuel Handling Operator Training and Use of Skills and Knowledge

Observation of the implementation of the training program was carried out to assess compliance with the AECB SAT-based criteria. A formal classroom training session was attended to determine that quality of training facilities, materials and training delivery, examinations and tests, and trainee attitude and interaction with trainers. No on-the-job (OJT) activity was underway during the visit to the station.

Finally, actuai operation in the field and the control room were observed to determine that the skills and knowledge acquired in training were being effectively applied. Quality of communication and teamworking, and appropriate attitude towards the performance of fuel handling operations were assessed as key indicators of operator competence.

(3) Personnel Interviews

Personnel with strong interest in the fuel handling operator training program and its results were interviewed using detailed questionnaires to assess the effectiveness of the program. The questions address the AECB SAT-based criteria plus some specific fuel handling items. This was an iterative process designed to determine whether the objectives of the program are being achieved in the eyes of :

(a) The trainees
(b) The trainers
(c) Fuel handling management
(d) Training management
(e) Associated personnel with interest in fuel handling
(f) Station management

A list of the personnel interviewed is given in Section 6. A typical interview questionnaire is attached as Attachment 1.

The interviews evaluated the fuel handling training program in terms of the AECB Objectives and Criteria as perceived by those interviewed. A total of sixteen interviews were conducted. As an adjunct to the interviews, relevant training documentation and records were examined as a source of objective evidence of program implementation.

(4) Analysis of Findings

Analysis of the assessments of station and utility policies and procedures, training programs and operating procedures plus the observations from the classroom instructional session, maintenance work, and fuel handling control panel operations provided the basic conclusions on the training program. Responses to the interview questions plus additional comments, complaints and compliments were pulled together to assess the comparative views on the training methods, delivery, effectiveness and the training's ultimate value to fuel handling operations. The combined analyses showed specific areas of the program where the AECB SAT-based criteria were satisfactorily met and where deficiencies exist.

(5) Evaluation Reports

The evaluation findings were reported in two stages:

(a) The Preliminary Report presented at the February 12, 1999 exit meeting following the interview and observation sessions at the station which presented initial and essential findings in concise manner. This is included here as Attachment 2.

(b) The Final Report, presented herein, is the summation of the findings of the evaluation process and provides a detailed review of the fuel handling operator training program in terms of the AECB SAT-based criteria and specific fuel handling aspects, and an overall conclusion of the quality and effectiveness of the program.

(6) Additional Questions

Several additional questions were included in the interviews to address fuel handling operational aspects of the training and its effects. The responses to these were all positive in terms of the training quality and application. The key findings included the following:

The training provides a good understanding of the arrangement and operating modes of the equipment.

The training provided effective improvement in fuel handling knowledge and skills and has contributed significantly to the good performance of the system. No events were recalled where shortcomings in fuel handling training was considered a factor.

Training program acquired skills and knowledge are shared among the fuel handling operators and there is enthusiastic interest in taking further fuel handling and general skills training.

Station, fuel handling and training department management personnel all considered the return-on-investment for fuel handling training to be excellent.

4. EVALUATION RESULTS

The results of the evaluation are presented in the following sections in terms of the AECB SAT-based Objectives and Criteria based on the assessments of the training procedures and materials, and the observations and interview findings. Deficiencies are noted in numeric order where significant differences from the AECB SAT-based criteria were found.

Objective 1: **Training Programs are effectively organized, directed and supported.**

Criterion 1.1: **Approved policies and procedures define a framework for establishing, conducting, and maintaining training programs in accordance with the principles of a systematic approach to training.**

Point Lepreau Reference Documents RD-01364-TR9 "Performance Based Training" and RD-01364-P16 "Control of Fuel Handling Operations and Maintenance" provide the top level framework for fuel handling training while Training Procedure TP 30-17 "Fuel Handling Department-Training Needs" and its reference generic training procedures define the detailed requirements and methodology for establishing, conducting and maintaining fuel handling training.

All those interviewed confirmed the use of training policies and procedures.

Criterion 1.2: **Adequate funding and staff are made available to support all the required training programs and activities.**

Funding was considered by all those interviewed to be adequate for the program needs. Funding has been consistently available for worthwhile, appropriate training initiatives. Staff level was described by several interviewees as being tight but adequate although more trainers would help speed up the training process.

Criterion 1.3: **Instructional facilities such as classrooms, laboratories, workshops and simulators meet the training needs.**

Classrooms and related facilities were found to be excellent. However, due to staff increases some training classroom space has been converted into offices and temporary training arrangements utilizing training workshop space and off-station facilities have been instituted. Most trainees and trainers found this to be less than satisfactory. Station management confirmed that this is a temporary situation that will be corrected within the next two years.

Training workshops were bright, clean and well equipped.

Most of the operator trainees interviewed stated that a classroom dedicated to fuel handling training was needed where procedures, operating and maintenance manuals, fuel handling mock-ups, components and equipment, and other training aids could be permanently kept. Several people suggested that a fuel handling simulator would be a significant training asset but all recognized the high complexity and cost involved. Fuel handling training does not currently employ a simulator.

Criterion 1.4: **All positions have clearly defined and documented entry level qualification requirements, and well documented initial and continuing training programs.**

Procedure TP 30-17 covers these topics providing detailed qualification requirements and training program continuation for the three operator levels, i.e. Fuel Handling Specialist-in-Training, Fuel Handling Specialist and Senior Fuel Handling Specialist. It further provides the training requirements for Main Control Room Fuel Handling Senior Panel Operator Authorization. Refresher training requirements for all the positions are also defined. Training in basic fuel handling maintenance, general skills and documentation, related plant systems, supervisory and leadership, and safety related and protection are detailed.

Management and training personnel were aware of the entry requirements and essentially all the trainees interviewed were clear on the training needed for their current and future positions.

Criterion 1.5: **There is a formal procedure for verifying that contractors, temporary personnel and other non-plant personnel are appropriately qualified for the work to which they are assigned.**

There is coverage of training for temporary employees in TP 30-17 which requires basic fuel handling training (Level 1) for long term temporary employees (greater than 9 months) plus qualification training for specific fuel handling duties. Temporary employees in this context are employees from other areas of the station, not from outside agencies. Contractor and other non-plant personnel are typically not assigned to fuel handling operating work, but, if used, will be given special training for the tasks to be performed. RD-01364-P16 calls for qualification affirmation for attached staff in fuel handling from other departments with particular trade related qualifications and limits their involvement to work which falls within their qualifications.

Criterion 1.6: **The responsibilities and authority of personnel involved in managing, supervising, developing, and implementing training are clearly defined.**

TP-30-17 details responsibilities of fuel handling operator training personnel (Senior Training Specialist, Fuel Handling Foreman, Training Superintendent, Fuel Handling

Supervisor, Senior Fuel Handling Specialists, Training Review Group, Trainees and Training Administration Staff) and additionally RD-01364-TR9 provides responsibilities for the Training Superintendent and other management personnel.

All personnel interviewed appeared to clearly understand the responsibilities and authority aspects of the fuel handling operator training program. There is an evident and impressively high level of dedication by all the personnel contacted to the success of the training program.

Criterion 1.7: **Personnel are informed and aware of the training required for their respective positions and of the performance expected of them during training. Repeated failures to meet these expectations results in the trainee being removed from the program.**

TP 30-17 defines the training required and the consequences of failing to meet a student performance standard (related fuel handling authorization is revoked and remedial training required). RD-01364-TR9 Criterion 1.8 covers personnel being made aware of the training for their position/job.

The interviews confirmed that this criterion is being met. One of the trainees indicated that the matter of removal from the training program was not addressed although he noted that failure to complete the required training would prevent him remaining in his fuel handling position.

Criterion 1.8: **Line management ensures that personnel attend the required training.**

RD-01364-TR9 Criterion 5.2 requires that management ensures that personnel participate in required training. This criterion is not covered in TP 30-17.

Interviews confirmed that management ensures attendance by advance scheduling of training and prompting for trainees. The trainers also remind trainees of scheduled training. Several interviewees noted that there is little need for line management to encourage attendance since most trainees are keen to attend and complete training. In the training and records observed, all trainees attended the courses as scheduled.

Criterion 1.9: **Training records are maintained to meet information needs.**

RD-01364-TR9 Criterion 5.2 covers maintenance of comprehensive training records. TP 30 -17 assigns responsibility for maintenance of training program files and individual training records to the Training Administrative Staff.

All personnel who were asked this question, confirmed they knew that their records are maintained. The records are currently being transferred to a new computer record system. Examples examined showed well organized records of training by individual.

Objective 2: **Training staff are qualified to discharge their assigned duties**

Criterion 2.1: **Training staff meet and maintain documented qualification requirements that address training, experience, subject matter expertise and instructional skills.**

RD-01364-TR9 Criterion 5.4 covers training delivery by individuals with appropriate subject matter knowledge and experience and who have demonstrated instructional skills. TP 30-17 requires that the Senior Fuel Handling Training Specialist (a) ensures that fuel handling trainers have adequate knowledge of the subject material and (b) maintains qualifications as a Senior Fuel Handling Specialist i.e. is fully qualified to perform all fuel handling operator functions. This ensures expert subject matter knowledge and skills. Although not noted in TP 30-17, the Fuel Handling Training Specialist also maintains the same level of fuel handling operator qualification. This qualification is documented in the computerized training record system as are the instructional "train-the-trainer" course records.

Criterion 2.2: **Instructors and training program developers receive additional training periodically to maintain and improve their subject matter and instructional skills.**

There is a Training Department "Train-the-Trainer" program described in TP 30.10 which provides instructional and related training. As part of their senior operator qualification maintenance, the trainers perform scheduled assignments in fuel handling operations as senior operators which ensures that they are up-to-date on the fuel handling systems and equipment.

Criterion 2.3 **Current revisions of station procedures, drawings and technical references are available to training staff, so that they maintain their knowledge of the station and of the subject matter.**

RD-01364-TR9 Criterion 2.11 states that current station procedures, drawings and technical references are used in design and development of training. This was confirmed in the interviews.

Criterion 2.4: **People who conduct on-the-job training and assessment receive adequate training on the policies, practices, methods and standards for delivering this training and for assessing trainee perform.**

RD-01364-TR9, and TP 30-17 coverage of OJT does not define trainer training for delivery and assessing trainee performance and trainers do not receive specific training for

delivering OJT. This is planned for the near future in concert with the formalization of maintenance training described later. The Fuel Handling Foreman co-ordinates and schedules OJT activities and observes and evaluates delivery of OJT, performs final checkout of trainees and provides checkout results to the Senior Fuel Handling Specialist for training records all as called up in TP 30-17.

1. Maintenance OJT trainer training is not formally defined and maintenance OJT trainers have not received training for delivery and assessing of OJT.

Criterion 2.5: **Training delivered by beginner trainers and utility personnel from outside the training department is monitored and the observations are used to improve their performance.**

RD-01364-TR9 Criterion 3.8 partially covers this item by noting that feedback from observation of training delivery is incorporated into trainer professional development but does not specifically mention beginner or personnel from outside the training department. Outside personnel are not typically used for fuel handling training. A similar approach is noted under Senior Fuel Training Specialist responsibilities calling for verification of effectiveness of training delivery by trainers by routinely monitoring the implementation process. Interview responses from the fuel handling trainers corroborated that monitoring takes place in early training sessions and throughout the trainer's career.

Criterion 2.6: **The performance of all training staff is evaluated on a regular basis and the results are used to improve their performance.**

RD-01364-TR9 Criterion 3.7 in part calls for evaluation of training provided by Point Lepreau staff including delivery consistency with the station training procedures and Criterion 3.8 notes that feedback from observation of training delivery is incorporated into trainer professional development. TP 30-17 includes verification of training delivery effectiveness by routine monitoring as a responsibility of the Senior Fuel Handling Training Specialist. This process was confirmed by the trainer interview.

Objective 3: **An analysis of the job determines the job performance requirements and serves as the basis for the design and development of the training program.**

Criterion 3.1: **Experienced personnel occupying positions for which training is being developed participate in the analysis of the jobs that they perform to provide subject matter expertise.**

RD-01364-TR9 Criterion 1.3 covers involvement of individuals knowledgeable of the position to be trained to identify and/or verify training needs. TP 30-17 calls for review of the course design by a second qualified individual to ensure that training objectives

identify the job performance requirements. It also notes that an initial job analysis to determine job performance requirements (JPRs) was carried out by a team of fuel handling experts during the transition to a SAT-based program (using the existing developed fuel handling training program as a base) for all fuel handling positions. Following review and revision this formed the fuel handling training program presented in TP 30-17.

Criterion 3.2: **The analysis identifies the tasks or job functions requiring initial training and requiring continuing training with due consideration given to tasks performed during non-routine and emergency conditions.**

This is addressed in RD-01364-TR9 criterion 2.1 which calls for training specifications to be developed in response to identified training needs. TP 30-17 defines the sequencing of training including re-qualification and refresher training. Training design incorporates non-routine and emergency conditions, including limitations and risks associated with manual intervention, as significant topics.

Criterion 3.3: **The analysis identifies the skills and knowledge needed for the tasks or job functions selected for training and is of sufficient detail to enable the development of suitable training objectives, test items and job performance measures.**

RD-01364-TR9 Criterion 1.4 calls for training needs assessment of sufficient detail to enable development of learning objectives and evaluation tools. TP 30-17 notes that initial job analysis was completed to determine the job performance requirements based on actual tasks and functions. OJT activities for fuel handling maintenance have not yet been formalized but will include these factors based on existing detailed maintenance procedures. OJT formalization is the next priority of fuel handling training and is planned for early completion.

Criterion 3.4: **Training objectives are developed to establish the training content, taking into consideration minimum entry level knowledge skills, experience and interdependence of tasks.**

RD-01364-TR9 Criterion 1.6 states that work group training distinguishes between initial and continuing training needs and TP 30-17 states that training needs assessment is needed to ensure that a job can be carried out to meet performance expectations. Qualifications for the fuel handling training progression are fully covered in TP 30-17. Equivalent objectives for maintenance OJT have yet to be formalized.

2. Maintenance OJT training objectives are not yet written.

Criterion 3.5: **The training objectives state clearly the standards of satisfactory trainee performance and are linked to job performance requirements.**

RD-01364-TR9 Criterion 2.4 notes that learning objectives identify expectations of trainee performance. TP 30-17, under Training Needs Assessment, ties training needs to ensuring that a job/activity/task can be carried out to meet job performance expectations. The actual training objectives are clear and are linked to the job performance requirements developed in the analysis. Similar linking has yet to be developed for maintenance OJT. This will be achieved when the deficiency in Criterion 3.4 is corrected.

Criterion 3.6: **Training objectives are sequenced, grouped and organized according to the required progression of learning.**

RD-01364-TR9 Criterion 2.5 covers organization and sequencing of learning objectives for effective training performance. TP 30-17 defines the sequential aspects of fuel handling operator training i.e. Level I, Level II, and Panel Authorization Training and the corresponding objectives are sequenced to align with the progression. Interviews indicated that sequencing of training was suitable for their training progression.

Criterion 3.7: **Test items for written, oral and simulator-based examinations and job performance measures are developed to measure job-related knowledge or performance of trainees, including higher cognitive abilities such as analytical and diagnostic skills.**

RD-01364-TR9 Criterion 2.8 states that evaluation methods appropriate for verifying trainee achievement of the learning objectives are identified. TP 30-17 states that performance standards will be derived from approved station documents. Review of trainee assessment tests, examinations and job performance measures showed that these check the trainees knowledge and skills on practical examples directly related to actual operating situations. In interviews, trainees indicated that diagnostic and analytical skills were developed and tested in a team environment where experiences of trainees and trainers were jointly used to evaluate and solve postulated situations. Key diagnostic indicators such as flow and temperature trends, operating stop locations relative to fuel and component geometries, and electrical voltage and current characteristics are addressed in the tests. This was mainly on Level II and higher level training and on OJT.

Criterion 3.8: **There is a clear link between the test items or job performance measures and the front end analysis of the job performance requirements.**

There is clear linking of test items and job performance measures with the training needs analysis of job performance requirements based on review of the Level I and II courses

and panel operator qualification training package. Since maintenance OJT training is not yet formalized, the related performance measures are not available but would be expected to follow the same close connection with needs analysis. Interviews supported these findings.

Objective 4: **The training program is developed to convey consistently the knowledge and skills which are needed to meet the training objectives.**

Criterion 4.1: **Lesson plans, laboratory guides, individualized study guides and other appropriate training material are developed to promote effective and consistent delivery of training.**

The lesson plans and course training materials are prepared in a manner that provides a consistent presentation of the training. For example, classroom course packages reviewed were uniform in format and arrangement and clearly presented descriptive, delivery and checkout elements of he training. Pending formalization of OJT processes, this criterion is not yet met for maintenance OJT.

3. Maintenance OJT does not include approved training material pending formalization of the OJT process.

Criterion 4.2: **Lesson plans and other training material are current, accurate and support the training objectives and test items.**

TP 30-17 assigns responsibility for ensuring up-to-date training material to the Senior Fuel Handling Training Specialist. Trainees and others interviewed indicated that procedures and documents used in training are to the latest issue. The personnel interviewed also indicated that the new training packages and related training material are effective and consistent which supported the evaluation review of these items. However, a small number of Level I and most of the Level II course packages have yet to be prepared.

4. Preparation of training course packages remains to be completed (mainly Level II).

Criterion 4.3: **Instructional settings are appropriate to the training objectives.**

Classrooms, workshops and the fuel handling control panels used for training are all considered suitable and appropriate to the training objectives. Refer to Criterion 1.3 for additional detail and trainee suggestions.

Criterion 4.4: **Lesson plans and other equivalent guides are approved before being implemented.**

TP 30-17 assigns responsibility for approval of all new training programs and changes to existing programs to the Fuel Handling Supervisor including checkout tests. Other detail documents are signed-off by the trainer and reviewed by the Senior Fuel Handling Training Specialist. The documents reviewed were duly approved.

Objective 5: **Training delivery employs good instructional techniques and clearly conveys appropriate information.**

Criterion 5.1: **Training is implemented as outlined in the approved training material.**

TP 30-17 requires that the Senior Fuel Handling Training Specialist verifies effectiveness of training delivered by trainers by routinely monitoring the implementation process which includes confirming that training is delivered as outlined in the approved training material. All interviewees with direct training experience confirmed that the training follows the course plans. Use approved training material was confirmed in the course attendance by the Evaluation Team.

Criterion 5.2: **Lesson plans or equivalent training guides are used in all instructional settings.**

TP 30-17 verification by the Senior Fuel Handling Training Specialist noted in Criterion 5.1 will also confirm that course plans are used in classroom and fuel handling control panel training. All interviewees with direct training experience confirmed the use of training course plans. This was also confirmed in the course attendance by the Evaluation Team.

Criterion 5.3: **Instructors are adequately prepared.**

The trainers and trainees interviewed confirmed that fuel handling trainers are well prepared and knowledgeable. This was the case for the course observed by the Evaluation Team.

Criterion 5.4: **Instructors use appropriate instructional techniques.**

Based on Evaluation Team course attendance, classroom training was effectively performed using modern instructional techniques including open-ended questioning, effective listening, team-based problem solving techniques, iterative presentation and collegial, open discussion style. Instructional aids included slide projection, and sample equipment and instrumentation to demonstrate equipment actuation and control. OJT was

not available for observation during the team visit. All trainees interviewed considered fuel handling classroom training to be very good.

Criterion 5.5: **Training staff and trainees have access to the necessary instructional aids, equipment and training material.**

All trainees interviewed confirmed that access is available to fuel handling procedures and documents including operating and maintenance manuals, drawings, procedures, and training information. Up-to-date document revision status lists and an e-mail notification system for operating manuals revisions ensures that documentation and other aids are current.

Criterion 5.6: **Individualized or self-study instruction gives the trainees sufficient guidance for mastering the training objectives.**

Although most of the current training does not involve self-study, trainees who had used individualized and self-study methods found the training material and related aids at least adequate to meet the training objective.

Criterion 5.7: **When a task is simulated, the working conditions, tools, and equipment replicate, to the extent practical, those of the actual task.**

Most task training is performed on the actual equipment either in the field or in the maintenance workshop. Training activities for special situations such as the fuel channel inspection and replacement, and fuelling machine abnormal and emergency operator training are rehearsed on the fuel handling rehearsal facility which simulates fuel channel operation but without the fuel channel flow, high temperature and radiation conditions.

Criterion 5.8: **When a task is simulated, the difference between the working conditions, tools, and equipment used in the training and those of the actual task are reviewed with the trainees.**

As reviewed in Criterion 5.7, simulation of working conditions is not used except as noted.

Criterion 5.9: **The procedures used in training are those in use in the station.**

Station fuel handling operating manuals and documents are used in classroom training and are available at the fuel handling control panel. Station fuel handling maintenance manuals and associated documents are available in the maintenance workshop office for use during OJT. All trainees confirmed the use of station procedures during training.

Criterion 5.10: Training develops the required diagnostic and teamwork skills.

Trainees generally concluded that the training, both classroom and OJT, helped develop their diagnostic and teamwork skills particularly during Level II training where group solution of problems provided the combined experience element. For OJT, working closely with senior experts was cited as an aid to improving analytical and diagnostic skills.

Criterion 5.11: Training reinforces the expectations of management for the conduct of operations.

Station management considers fuel handling training to be effective in meeting the station expectations since the fuel handling system has operated safely and efficiently. New management initiatives on operating conduct topics such as communications and self-checking to be introduced in the near future will enhance the fuel handling operation. Essentially all those interviewed agreed that fuel handling training was meeting management expectations for the conduct of operations.

Objective 6: Trainees are assessed and receive prompt feedback on their mastery of the training objectives.

Criterion 6.1: Trainees are assessed regularly and fairly.

None of the trainees interviewed had complaints regarding the fairness of their training performance assessments. Two felt that the current feedback period of one month was a bit long but not a serious concern. Some commented on the usefulness of the test results from classroom training and OJT in calibrating their knowledge and skills improvement including discussion with trainers regarding the results. Evaluation review of the senior panel qualification JPMs and tests for classroom courses indicated that these would fairly assess the knowledge and skills of the trainees.

Criterion 6.2: Higher cognitive abilities such as analytical and diagnostic skills are assessed appropriately.

Although examples were sparse, most trainees considered that their analytical skills were properly assessed during training. Some felt that OJT provided the best assessment of these skills while others considered the course work and tests to be better assessment means. The evaluation assessment, based on review of course material, classroom training tests and JPMs in the case of senior panel qualification, was that analytical and diagnostic skills are addressed fairly and appropriately.

Criterion 6.3: **Trainees receive prompt feedback on their strengths, weaknesses, and on the need for any necessary remedial action.**

Most of the trainees interviewed considered that they received prompt feedback but one stated that this was not the norm while another said that strengths were not usually noted. One trainee noted that he received positive feedback during maintenance OJT when trainers recognized that he had carried out a task well. In the training sessions observed during the evaluation, trainees received prompt feedback in the course of the training.

Criterion 6.4: **Remedial training and reassessment are given to trainees who fail to meet performance standards.**

None of the trainees interviewed had experienced the need for remedial training but some noted repeat training and coaching particularly during OJT when trainers wanted to ensure that the needed skills had been acquired. TP 30-17 specifies that failure to meet a defined standard will result in revoking the individuals fuel handling work authorization and that remedial training will be required.

Criterion 6.5: **Personnel successfully complete all related training requirements before being assigned to perform a task independently.**

All the trainees confirmed that operators are not assigned to perform tasks until they have completed all related training requirements for that task. Listings of operator qualifications are maintained by the Fuel Handling Senior Training Specialist copies of which are used by the Fuel Handling Foreman in assigning work and are also available in the control room fuel handling operations manual. The listings denote the important fuel handling, general skills and safety course qualifications for each of the operators, and the accessibility and use of the listings was confirmed during the evaluation. Some of those interviewed noted that they would decline tasks for which they were not qualified although none had experienced this situation.

Criterion 6.6: **Trainees meet the minimum requirements for entry into the training program. Exemptions from training are based on objective evidence that the subject is not required.**

TP 30-17 defines the entry qualifications for all levels of the fuel handling training program. A procedure is included in TP 30-17 for waiver of training courses in which the reasons for the waiver request are detailed and presented to the Fuel Handling Training Review Group (TRG) for consideration.

Criterion 6.7: **All answers expected during written or oral examinations, or all actions expected during performance based tests, are defined in advance in appropriate marking guides that are consistent with current plant configuration and working practices.**

Performance standards are required by TP 30-17 to be derived from station approved documents including operational procedures, quality assurance documents and verification documents, and are evaluated by a qualified individual as meeting the job performance requirements. These are developed in advance of the training. Review of training course packages confirmed that marking guides are included for classroom training and performance measures for panel qualification check-out. Equivalent maintenance OJT performance measures are expected on formalization of this training.

5. Formal JPMs have not been developed for maintenance OJT.

Criterion 6.8: **Adequate precautions are taken to ensure confidentiality of examinations and tests.**

All trainees interviewed said that examination and test questions were unknown prior to examination. Written checkout tests questions are retained in secure files by the Fuel Handling Training Specialist and are also on the computer system in a limited access file not available to operators. The checkouts are not distributed to the trainees until the time of the actual tests. Checkout questions are not repeated in subsequent tests.

Objective 7: **A systematic method is used to evaluate and revise training programs.**

Criterion 7.1: **Training programs are evaluated on a regular basis with all the individual evaluation activities integrated into a comprehensive system.**

Feedback from fuel handling trainees, trainers and supervisors is reviewed and presented to the TRG which meets quarterly to review the ongoing fuel handling program in accordance with TP 30-17. This evaluation activity is based on Training Department Procedure TP 60-10 "Guidelines for Training Effectiveness Evaluation". Those questioned on training evaluation were familiar with the TRG and considered it an appropriate forum for training program evaluation.

The Training Department routine monitoring of fuel handling training delivery, also required by TP 30-17, has not commenced due to other priorities. The initiation of this evaluation process is planned for the near future.

6. The Training Department does not conduct comprehensive evaluations of the fuel handling training program.

Criterion 7.2: **Training program improvements and changes are proposed, initiated, tracked, and incorporated in the program in a timely fashion.**

The TRG considers proposed improvements and changes, and recommends their incorporation into the fuel handling training program when they are judged suitable and appropriate. The frequency of TRG meetings helps ensure timely response and, where urgency exists, special meetings are convened to speed implementation. In an interesting adjunct to this requirement, cases where the current fuel handling documents were found to be out-of-date relative to the actual equipment, based on trainee knowledge, resulted in training session initiated document revisions.

Criterion 7.3: **Feedback from trainees and trainers is solicited regularly and analyzed.**

Course evaluations are collected and considered for training program actions in accordance with TP 30-17. Several of the trainees interviewed mentioned the accessibility of fuel handling trainers and management which accommodates proposing training program changes directly. All trainees confirmed the course feedback process.

Criterion 7.4: **Post-training feedback is used in the evaluation of training program.**

TP 30-17 assigns responsibility for collecting and assessing post-training feedback to the Senior Fuel Handling Training Specialist. Those questioned on this criterion indicated that this process is effectively carried out. Forms created to collect this feedback were reviewed and found adequate.

Criterion 7.5: **Plant supervisors and managers are regularly interviewed to obtain feedback on job performance problems and training priorities.**

The fuel handling trainers attend the quarterly TRG meetings where fuel handling management feedback on training needs and performance problems is obtained. But it is in the informal day-to-day interfacing between trainers and management that the initial and, sometimes, urgent feedback is received.

Criterion 7.6: **Procedural and equipment changes, changes in job descriptions, and operating experience feedback, including station and industry-wide events, are systematically analyzed to identify training implications.**

TP 30-17 requires assessment of operating experience in-house and externally to determine whether training program changes are needed. Procedural and equipment changes are reviewed and training program material is revised accordingly.

Criterion 7.7: **The results of evaluations of the training programs performed by groups external to the training department are incorporated in the training program evaluation process.**

The fuel handling training program has not been evaluated by an external group, such as WANO or INPO, up to this point. However, results of AECB evaluations of training programs for other station systems were used to improve the fuel handling training program.

Criterion 7.8: **Training documentation, including training material, is revised to reflect the findings of the training program evaluations.**

TP 30-17 requires that the Senior Fuel Handling Training Specialist initiate changes in the training program as a result of TRG evaluations. For example, the current upgrades to the fuel handling training program to accord with SAT-based objectives and criteria is evidence that revisions are made. As the new course materials are used for training, changes will be made as a result of program evaluations.

Criterion 7.9: **Training delivery in the classroom, laboratory, workshop, simulator, field and on-the-job is evaluated regularly and the evaluation results are used to improve the training program.**

The training delivery is monitored regularly by the Senior Fuel Handling Training Specialist to verify the effectiveness of training implementation in accordance with TP 30-17. Findings are used to develop improvements in the program. This was also indicated by the trainers and trainees during the interviews.

Criterion 7.10: **Results of trainee assessments are analyzed so that the assessment tools and the training program may be improved.**

The Senior Fuel Handling Training Specialist stated that assessment tools are reviewed based on the examination and test results to calibrate the suitability of the assessments and their degree of difficulty. Changes are made as required. An example cited was a change

to reduce the degree of difficulty in course evaluation testing on a newly developed course when assessment results fell well below expected values.

Criterion 7.11: **Training provided by personnel from outside the training organization is evaluated to ensure that it meets the job needs and that its quality is consistent with utility training standards.**

Outside agencies are seldom used for fuel handling training and usually involve either special technical training on specific equipment or generic skills training organized by the Training Department which covers training quality requirements by contract terms. The training is evaluated by the fuel handling training staff.

5. DOCUMENTS REVIEWED

Reference Documents and Training Procedures

RD-01364-TR9 Performance Based Training

RD 01364-P16 Control of Fuel Handling Operations and Maintenance Activities

TP 30-17 Fuel Handling Department Training Needs Procedure

TP 10.11 Training Terminology

TP 10.12 Forms and Format

TP 10.13 Contract Training

TP 20.10 Guidelines for Training Design and Development

TP 40.10 Guidelines for Training Delivery

TP 60.10 Training Effectiveness Evaluation

TP 60.11 Training Needs Assessments Guidelines

Fuel Handling Training Courses (per SAT-based program)

The following Training Course packages were reviewed as representative examples of the training material developed under the SAT-based program in Fuel Handling:

97148-210 35252 Fuelling Machine Instrument Air supply

97148-211 63590 Position Detecting Devices for the Fuel Handling System

97148-310 35200 Fuelling Machine Magazine Pressure, Level and Temperature Control

97148-343 35200 Fuel Handling Senior Panel Qualification

Fuel Handling Training Manuals

The fuel handling training group now considers these obsolete. Training Courses, as they are developed, will supersede the manuals although the descriptive material in the manuals will be used as a basis for the Course Training Manual sections in the new course packages where applicable.

TR 35000: Fuel Handling - General

TR 35111/35120 New Fuel

TR 35210 Fuelling Machine Head - General

TR 35221 Fuelling Machine Bridge

TR 35224 Fuelling Machine Carriage

TR 35230 Fuelling Machine D2O Control Systems

TR 35240 Fuelling Machine Oil Hydraulic System

TR 35250 Fuelling Machine Air System

TR 35260 Fuelling Machine D2O Supply System

TR 35300 Spent Fuel Discharge System

TR 35312 Defective Fuel Canning

TR 35365 Defective Fuel Handling and Inspection

TR 35370 Spent Fuel Dry Storage

TR 35612 Fuelling Machine Calibration Facility

TR 35613 Rehearsal Facility

TR 63590 Fuel Handling Position Detecting Devices

TR 63593 Computer Control in Fuel Handling

TR 63594 Fuel Handling Operation under Computer Control

6. PERSONNEL INTERVIEWED

The following personnel were interviewed during the evaluation:

- Station Manager
- Acting Production Manager
- Training Department Superintendent
- Fuel Handling Supervisor
- Fuel Handling Foreman
- Senior Fuel Handling Specialist-Training
- Fuel Handling Specialist-Training
- Fuel Handling Technical Supervisor
- Fuel Channels Technical Supervisor
- One Shift Supervisor
- Two Senior Fuel Handling Specialists
- Two Fuel Handling Specialists
- Two Fuel Handling Specialists-in-Training

7. MEETING ATTENDEES

(a) **Entry Meeting** (February 8, 1999)

Peter Ahearn	Fuel Handling Supervisor
Dave Burrill	Fuel Handling Specialist-Training
John Condon	AECB/QUALPROTECH-Evaluation Team Leader
Bill Crawford	Senior Fuel Handling Specialist-Training
Paul Gallant	Senior Fuel Handling Specialist
Dave McBrine	Fuel Handling Foreman
Bill Pilkington	Station Manager
Wayne Theriault	Training Superintendent
Zia Sheikh	Quality Assurance

(b) **Exit Meeting** (February 12, 1999)

Peter Ahearn	Fuel Handling Supervisor
Dave Burrill	Fuel Handling Specialist-Training
John Condon	AECB/QUALPROTECH Consultant-Evaluation Team Leader
Bill Crawford	Senior Fuel Handling Specialist-Training
Michèle Légaré	AECB-Training Program Evaluation Officer
Dave McBrine	Fuel Handling Foreman
Keith Stratton	Acting Production Manager
Wayne Theriault	Training Superintendent
Warren Demarchant	Quality Assurance

ATTACHMENT 1

TYPICAL QUESTIONNAIRE

Questionnaire: F/H Training Specialist, Senior F/H Training Specialist

SAT Criteria	Questions
1.1	Are policies and procedures in place for performing fuel handling training programs in accordance with the principles of SAT (Systematic Approach to Training)?
1.2	Are staffing and funding adequate for carrying out the fuel handling training program?
1.3	Do the instructional facilities (classrooms, laboratories, workshops) meet the training needs?
1.4	Are the qualifications for the positions to be trained clearly defined including entry level requirements and well defined initial and continuing training plans?
1.5	Are your responsibilities in developing and implementing training well defined?
1.7	Are the candidates for fuel handling training made aware of the training required for their positions? Is there a listing of F/H operators and their qualification levels?
1.7	Is the performance expected during training explained to the trainees including the fact that repeated failures would lead to removal from the training program?
1.8	Do supervisors of the trainees make sure they attend the planned training?
1.9	Are trainees made aware that their training records are maintained for information needs?
2. 1	Are you required to maintain documented qualifications that address your training experience in the training topic and instructional skills?

2.2	Do you receive periodic training to maintain your expertise in the subject matter and your instructional skills?
2.3	Are current revisions of station procedures, drawings and technical references available to you so that you can keep up to date on station and the fuel handling systems?
2.4	Are you adequately trained to effectively provide fuel handling training to the trainees? Are the personnel who provide OTJ training equivalently trained?
2.5	Were you monitored during your early training delivery assignments, and were the observations used to improve your performance?
2.6	Is your performance as a trainer evaluated regularly and are the results used to improve your performance?
3.1	When performing analysis of job performance requirements, do you consult with senior position holders for added expert input on the subject matters?
3.2	Are non-routine and emergency situations duly considered in arriving at task or job function training?
3.3	Do the analyses clearly define the skills and knowledge needed for the tasks or job function to enable development of training, test items and job performances measure?
3.4	Are the training objectives clear enough so that training content can be made suitable for the tasks involved and the trainees' qualifications, knowledge and skills?
3.5	Are the training objectives clearly linked to the job performance requirements?
3.6	Is the training organized and sequenced to suit trainees' needs relative to their jobs?
3.7	Do test items for written and oral examinations, and associated job performance measures, accurately assess the job-related knowledge and performance of trainees?
3.7	Do the tests identify /recognize higher cognitive skills such as analytical and diagnostic skills?

3.8	Is there a clear link between test items and job performance measures and the front end analysis of job performance requirements?
4.1	Based on your experience, do you consider the fuel handling training delivery to be effective and consistent?
4.2	Is the training material accurate and up-to-date?
4.3	Are the training facilities suitable for the training needs and objectives?
5.1	Does the instructional delivery follow the training materials?
5.2	Are lesson plans and other suitable training guides used in all instructional activities?
5.3	Are you well prepared when you deliver fuel handling training?
5.4	Do you use good teaching techniques?
5.5	Have the trainees convenient access to instructional aides, equipment and materials needed for the training objectives?
5.6	Are the self-study instructions adequate for trainees to achieve the training objectives?
5.7	When a task is simulated in training or testing skills, did conditions, tools and other equipment duplicate the actual work situation?
5.8	When there were differences, were these reviewed with trainees?
5.9	Are the procedures and documentation used in training the same as those used in the station?
5.10	Is the training designed to develop diagnostic skills ?
5.10	Does the training help develop teamworking and communication skills?
5.11	Does fuel handling training reinforce station management expectations for the conduct of operations?
6.1	Is performance assessed fairly and in a timely fashion during the training?

6.2	Do the assessments address trainees' analytical and diagnostic skills development?
6.3	Do trainees receive prompt feedback on their strengths and on areas where they need improvement?
6.4	Are the trainees provided with suggestions or direction for remedial actions to improve performance?
6.6	Do you review trainees' qualifications to confirm minimum requirements are met for entry into the training program?
6.6	Are proposed exemptions from training reviewed by the training organization to ensure that the exempted topic(s) is not a job requirement?
6.7	Are expected answers for written or oral examinations, or actions expected during performance based tests, defined in advance in marking guides?
6.7	Are these advance answers and expected actions consistent with current fuel handling configuration and working practices?
6.8	Are adequate precautions taken to ensure the confidentiality of examinations and tests?
7.1	Are the fuel handling training programs evaluated on a regular basis and are they integrated into a comprehensive training evaluation system?
7.2	Are proposed training improvements and changes acted on by integrating them into the programs in a timely manner?
7.3	Are trainees and trainers regularly asked for feedback on training and is the feedback analyzed for application to future training?
7.4	Is post-training feedback used in the evaluation of the fuel handling training programs?
7.5	Do you regularly interview fuel handling supervision and management to obtain feedback on job performance problems and training priorities?
7.6	Are procedural and equipment changes, job description changes and operating experience feedback (including station and industry-wide events) reviewed by the training organization to identify training implications?

7.7	Are the results of training program evaluations performed by groups external to the training department incorporated in the training program evaluation process?
7.8	Is training documentation including training material revised to reflect the findings of the training program?
7.9	Is the delivery of fuel handling training in the classroom, laboratory, workshop, field and on-the-job evaluated regularly? Are evaluation results applied to improve training?
7.10	Are results of trainee assessments analyzed to improve assessment tools?
7.11	When training is provided by personnel from outside the training organization, is it evaluated by the training organization to ensure it meets the job needs and that its quality is consistent with the utility training standards?
Add'l	Does fuel handling training emphasize the need for trainees to thoroughly understand the arrangement and operating modes and sequences of the equipment?
Add'l	Does the training cover both routine and emergency/abnormal operations?
Add'l	Does the training provide adequate information on the computer and control system operation?
Add'l	Are the procedures and limitations of manual intervention in normally controlled operations addressed during the training?
Add'l	Does the training provide a full appreciation of the risks involved in manual intervention, especially under emergency situations, and the need for obtaining approval before proceeding?
Add'l	Are key diagnostic parameters addressed in training? For example, system stops may be diagnosed by referring to fuel bundle and closure/shield plug dimensions, potential operating problems may be indicated by abnormal trends in flows, pressures, temperatures, electrical current and voltage, and the like.
Add'l	Overall, is the fuel handling training program effective and efficient in improving the knowledge and skills of the trainees? Have there been incidents due to lack of knowledge or skills?

Add'l	Has the training aided in preparing trainees to perform their fuel handling operating duties in a safer and more knowledgeable fashion?
Add'l	Are you aware whether training-acquired skills and knowledge are shared with other members of the fuel handling operating team?
Add'l	Is there keen interest by operators in additional fuel handling training opportunities?

ATTACHMENT 2

INTERIM REPORT PRESENTED AT EXIT MEETING FEBRUARY 12, 1999

POINT LEPREAU GS FUEL HANDLING OPERATORS TRAINING PROGRAM EVALUATION- February 8-12, 1999 Evaluation No. 99003

The AECB training program evaluation team acknowledges the openness and cooperation provided by the Point Lepreau GS staff who participated in the meetings, interviews and training observation. We particularly wish to thank Mr. Bill Crawford, our contact for the evaluation, who successfully arranged the requested interviews and helped ensure that the evaluation went smoothly.

The AECB team considered how well the Fuel Handling Operators Training Program meets the SAT-based AECB Objectives and Criteria. Classroom, field work and Control Room Fuel Handling Panel operations were observed and numerous training and related documents were examined. Interviews and discussions were conducted with station, fuel handling, and training management and with trainees, trainers, and other personnel with a close interest in fuel handling training.

The results of these activities were combined to reach the evaluation conclusions described in the attached interim evaluation report.

The Fuel Handling Operators Training Program is in the midst of transition to a SAT-based system and while most of the new procedural documentation is in place, a small number of the course packages for Level I, and almost all of the Level II course packages have yet to be prepared.

It was found that on-the-job (OJT) trainers are currently not given trainer training. A program for "training the trainer" has been initiated by the Training Department which fuel handling trainers, including OJT trainers will attend. It is noted that selection process for OJT trainers ensures that only those with expert skills in the subject matter are involved.

The conclusion of the evaluation is that, except for a few deficiencies, the Fuel Handling Operator Training Program complies with the SAT-based AECB Objectives and Criteria. Overall, the program is perceived as being effective and successful.

John Condon, Evaluation Team Leader QUALPROTECH (OAKVILLE) INC.

Michèle Légaré, Training Program Evaluation Officer PQAD, AECB

Preliminary Observations

Objective 1: **Training Programs are effectively organized, directed and supported.**

The Fuel Handling Operators Training program is well organized. Support is currently considered adequate for the implementation of a complete SAT-based training program that is underway. Facilities used for training are good although, due to increased station training staff, some classroom space has been lost and the alternative workshop located classroom is less suitable. Entry-level qualifications for training are well defined as are initial and continuing training for all positions. Training staff and trainee responsibilities are clear and well understood. Training records are well organized and accessible. Management ensures trainee attendance at scheduled training courses.

Objective 2: **Training staff are qualified to discharge their assigned duties.**

The fuel handling trainers display dedication to the success of the training and, because of their extensive experience and continued qualification as senior operators, are fully knowledgeable on the training subject matter. Trainers are monitored to prompt improvements in their delivery and their performance is regularly evaluated. However, F/H trainers and senior F/H specialists who deliver OJT have not yet received specific instructional skills on-the-job training techniques and evaluation. This training is planned for the near future.

Objective 3: **An analysis of the job determines the job performance requirements and serves as the basis for the design and development of the training program.**

Fuel handling operators training originated in the early operation of the station and has been developed since then to its present advanced and effective state. During the transition to a complete SAT-based training program, analysis of the fuel handling jobs was carried out by a team of experts in the fuel handling operation to confirm and update the job performance requirements and the design and development of the detailed training program. Following review and revision, this formed the fuel handling training program presented in TP30-17 Fuel Handling Department - Training Needs. The training objectives are clear and well sequenced and state the expected standards of satisfactory trainee performance, and are linked to job performance requirements.

Objective 4: **The training program is developed to convey consistently the knowledge and skills which are needed to meet the training objectives.**

The classroom training consistently conveys the knowledge to meet the training objectives. On-the-job training guides for maintenance skills are not formalized or used at this point. However, detailed job performance measures have been developed for the Senior panel qualification.

Objectives 5: **Training delivery employs good instructional techniques and clearly conveys appropriate information.**

Many interviewees commented on the positive reinforcement of diagnostic and teamwork skills during training. Trainers are well prepared and dedicated and eager to improve their instructional skills.

Objective 6: **Trainees are assessed and receive prompt feedback on their mastery of the training objectives.**

Trainees are assessed fairly and receive feedback on their strengths and weaknesses.

Objective 7: **A systematic method is used to evaluate and revise training programs.**

Feedback from trainees, trainers, and supervisors is reviewed and presented at the Training Review Group which meets quarterly. Improvements and changes proposed are tracked and incorporated in the training program. Post-training feedback on the training is collected and considered for training change actions. Fuel Handling supervisors are contacted on a frequent basis for feedback on job performance problems and training priorities. Industry-wide events are tracked to assess whether they lead to the requirement for training changes. Evaluation of training delivery is carried out by the senior trainer. Skills training is evaluated by the Fuel Handling Foreman. The Training Superintendent plans on evaluating the Fuel Handling training delivery in the future.